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DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF WATER QUALITY PROGRAMS
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Subject: Guidance Memorandum No. 07-2004 - Investigation and Characterization of Discharges from Heating Oil Tanks

To: Regional Directors

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Summary:

Releases from heating oil tanks are being reported with an increasing frequency as homeowners interface with fuel suppliers, real estate agencies, and local government about their heating oil tank. The scope of work required to investigate and complete corrective actions following a discharge from a heating oil tank can vary tremendously depending upon the extent and severity of contamination from the discharge and the risks posed by the discharge. This guidance document discusses the procedures by which DEQ will evaluate and manage discharges from heating oil tanks.

This guidance replaces *Section 5.4.4. - Site Characterization Following Discharges from Small Heating Oil Tanks* of the Storage Tank Technical Manual, 3rd Edition.

Electronic Copy:

An electronic copy of this guidance in PDF format is available for staff internally on DEQNET, and for the general public on DEQ's website at: <http://www.deq.virginia.gov>.

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Disclaimer:

This document provides procedural guidance to the DEQ Storage Tank Program staff. This document is guidance only. It does not establish or affect legal rights or obligations. It does not establish a binding norm and is not finally determinative of the issues addressed. Agency decisions in any particular case will be made by applying the State Water Control Law and the implementation regulations on the basis of site-specific facts.

Virginia Department of Environmental Quality Storage Tank Program

Investigation and Characterization of Discharges from Heating
Oil Tanks

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1.0 Introduction

Releases from heating oil tanks are being reported with an increasing frequency as homeowners interface with fuel suppliers, real estate agencies, and local government about their heating oil tank. The scope of work required to investigate and complete corrective actions following a discharge from a heating oil tank can vary tremendously depending upon the extent and severity of contamination from the discharge and the risks posed by the discharge. This guidance document discusses the procedures by which DEQ will evaluate and manage discharges from heating oil tanks.

2.0 Suspected and Confirmed Releases (Discharges) from Heating Oil Tanks

Discharges from heating oil tanks must be reported to DEQ. Article 11 does not address “suspected releases.” The law, however, stipulates that the person causing or permitting a substantial threat of a discharge must take action deemed necessary by the Board to contain and clean up such a discharge or threat of a discharge.

Confirmed releases (discharges) must be reported to DEQ in accordance with the requirements of Article 11 of State Water Control Law. DEQ has the responsibility to evaluate these situations and decide if further action or investigation is warranted. The following will be treated as confirmed releases from Home Heating Oil Tanks:

1. The presence of visible free product in the environment;
2. TPH concentrations in soil samples collected during tank removal that are 100 mg/kg or greater;
3. TPH concentrations in water samples collected from the tank pit area during tank removal that are 1 mg/l or greater;
4. An impacted receptor (e.g. petroleum contaminated water supplies, petroleum impacted surface water, petroleum vapors in a basement or crawlspace not associated with an oil furnace); and
5. Inordinate loss of fuel.

As discussed in the DEQ Reimbursement Manual, the DEQ may post-approve reimbursement for emergency response actions needed to abate an immediate risk to a receptor. The tank operator or consultant should contact DEQ within 24 hours to seek approval for the work performed in these circumstances. Regardless of the necessity of actions, any work performed more than 24 hours prior to the time the release was reported will not be eligible for reimbursement.

The conditions listed below may indicate a potential threat of a discharge, but do not necessarily indicate that a discharge has occurred. Staff receiving reports of one or more of these conditions may **recommend** that the homeowner obtain additional information to determine if a discharge has occurred. Staff **will not require** the collection of additional information.

Conditions indicating a potential threat of a discharge may include, but are not limited to:

1. an active tank with > 1 inch of water in the tank;
2. a report of problems with the oil furnace;
3. the combination of tank age and the context of its location (i.e. the tank is located in a subdivision with many discharges from home heating oil tanks); and
4. a PID/FID reading > background.

DEQ will not require tank operators to perform additional site activities to investigate the conditions indicating a potential threat of a discharge. DEQ does not reimburse the tank owner for these investigations since DEQ does not require them.

3.0 Site Characterization and Categorization of Cases Following Discharges from Heating Oil Tanks

Discharges from heating oil tanks are subject to the requirements of Article 11 of Virginia Water Control Law and persons causing or permitting discharges of oil from these tanks are required to report, contain, and clean up the discharge. The DEQ Storage Tank Program separates confirmed releases from heating oil tanks into four (4) categories: *No Further Action (NFA)*, *Category 1*, *Category 2*, and *Category 3*. These categories will be assigned based upon the information staff have about the site at the time the discharge is reported, severity and extent of contamination, risks from the discharge, and the size of the heating oil tank. Discharges from heating oil tanks having a capacity of greater than 1,000 gallons will be placed in *Category 3*. Case Managers should use the flowchart in Figures 3-1a through 3-1d to determine the appropriate approach for responding to discharges from heating oil tanks.

As with all other releases or discharges of petroleum or regulated substances into the environment, staff should ensure that appropriate actions are taken to protect human health and the environment. The release or discharge of oil from the tank and piping must be stopped, free product must be removed to the extent practicable, and petroleum saturated soil must be addressed in accordance with DEQ Storage Tank Program guidance.

3.1 DEQ Determined No Further Action

When a discharge from a heating oil tank is reported, the DEQ Case Manager may use existing information and professional judgment to determine that no further action (*NFA*) is necessary at the site. *NFA* sites pose a low risk to impact receptors, have little or no free product, and minor amounts or no petroleum saturated soil. A *NFA* determination is appropriate at sites where the area is served by public water, the leaking tank has been out of service for an extended period and is not believed to be contributing product to the environment, and there is no reason to expect any impact(s) to receptor(s). Since *NFA* determinations are a confirmed releases a pollution complaint number is required for these cases.

If an out of service tank is present at the site, the Case Manager may recommend that the tank operator contact the local building official/fire marshal and properly close the tank. The Case Manager has the discretion to withhold the case closure letter (Appendix A) until the tank has been properly closed if this action is believed necessary to prevent further discharges (*e.g.*, to prevent the UST, with fill and vent line still in place, to be inadvertently filled with product).

Figure 3-1a
Release Response at Heating Oil Tank Sites

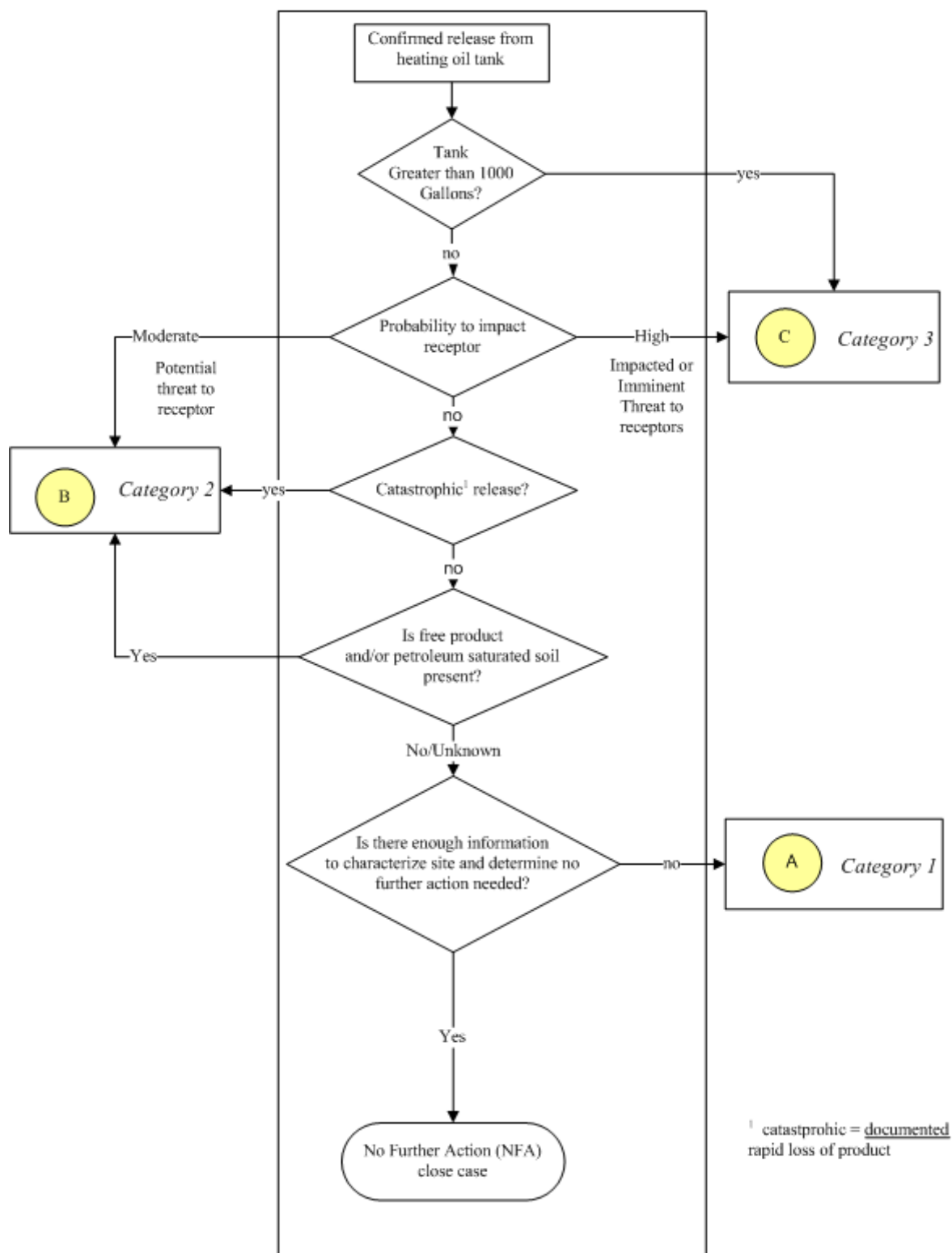


Figure 3-1b
Release Response at Heating Oil Tank Sites

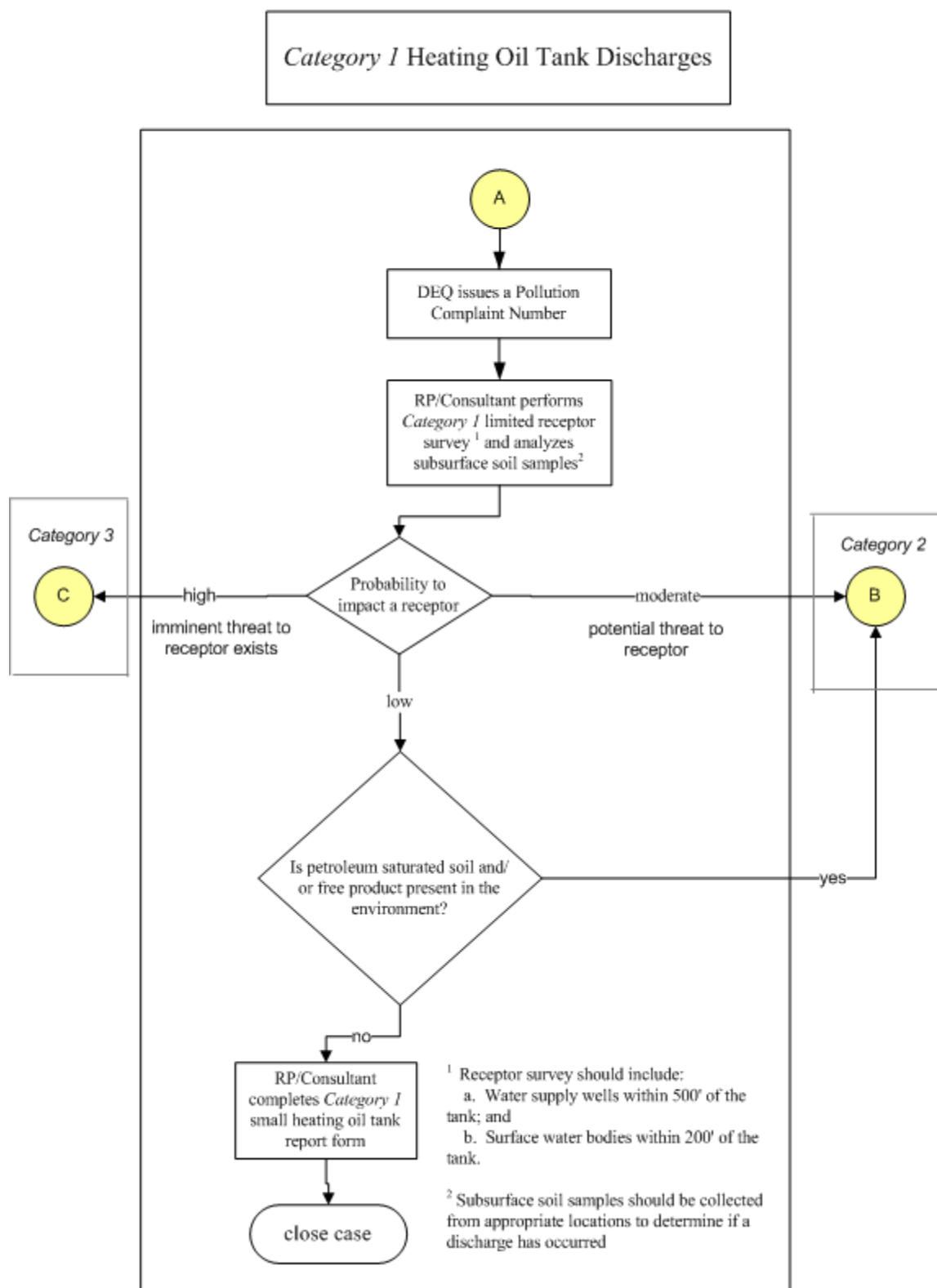


Figure 3-1c
Release Response at Heating Oil Tank Sites

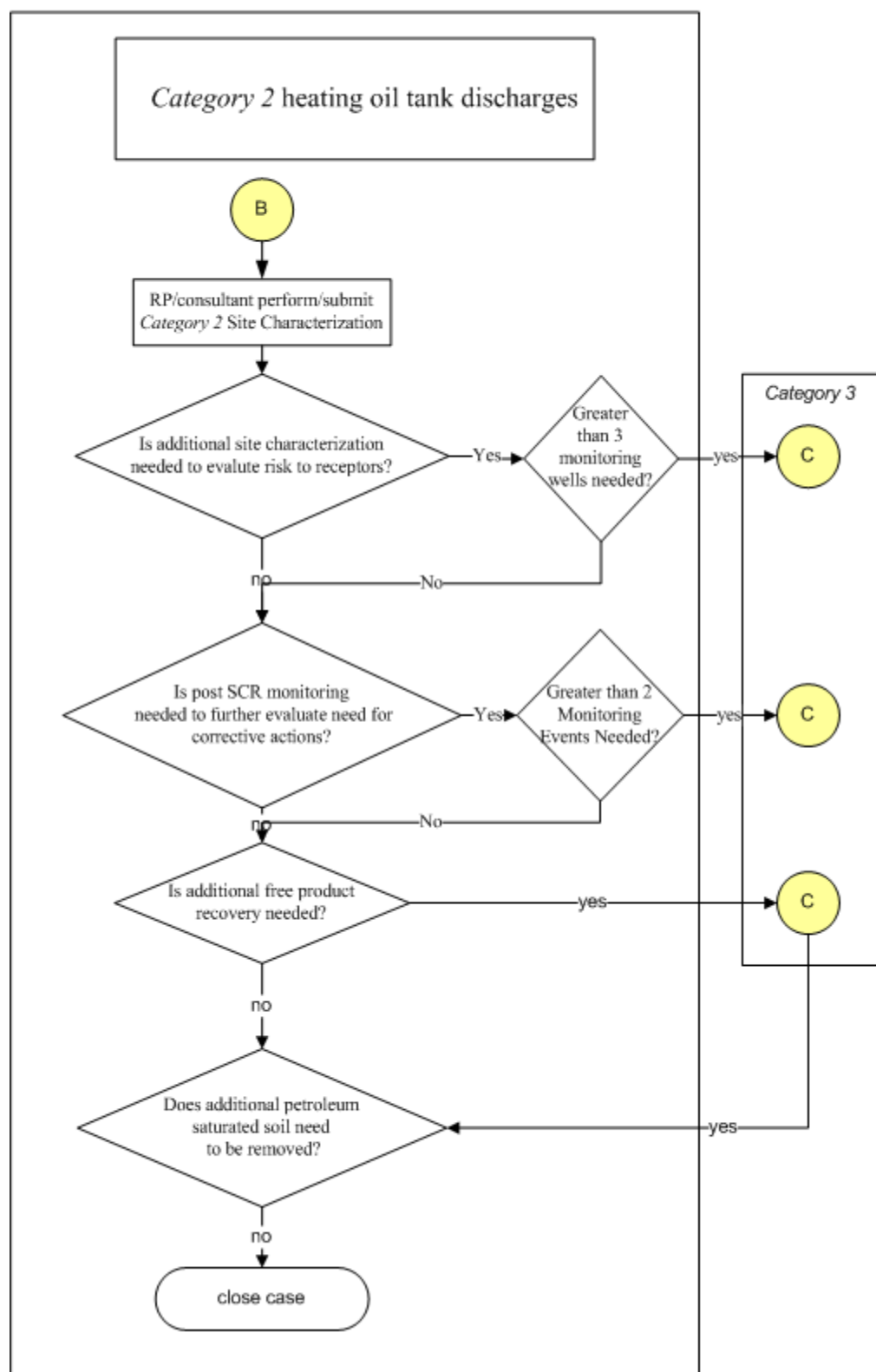
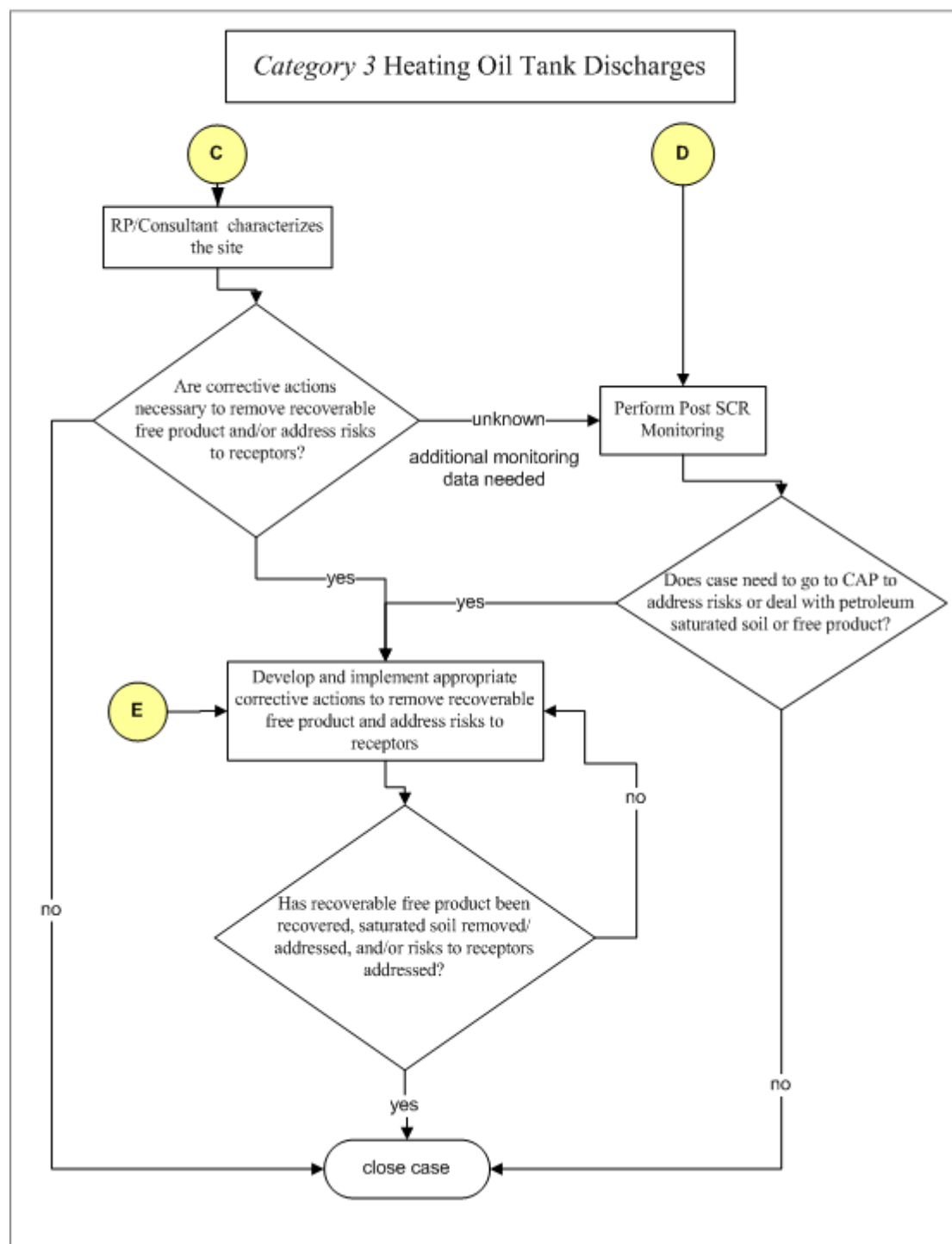


Figure 3-1d
Release Response at Heating Oil Tank Sites



3.2 Category 1 Heating Oil Tank Discharges

Category 1 sites pose a low risk to impact receptors, have little, or no free product and minor amounts or no petroleum saturated soil. These sites only require limited field work and the submission of a Heating Oil Tank Release Characterization Report Form (Appendix B). If an impacted receptor has not been identified at the time the discharge is reported and the *DEQ determined NFA* category is not appropriate, the heating oil tank discharge will start as a *Category 1* site. At many *Category 1* sites an out-of-service heating oil tank is still in place. The DEQ Case Manager should authorize the removal and disposal of the remaining oil/water/sludge from the tank.

A *Category 1* site may be closed following completion of the Heating Oil Tank Release Characterization Report Form if the Case Manager determines that there is low risk to impact receptors, the discharge has been stopped, and site information indicates there is no recoverable free product and no significant amount of petroleum saturated soil.

3.2.1 Category 1 Reporting

Discharges from home heating oil tanks for *Category 1* sites generally are reported to DEQ following the discovery of petroleum in the environment. Most often, the discovery of petroleum occurs during a Phase II investigation (e.g. the results from a sample taken exclusively for a property transaction). Less often, petroleum odors in the ambient air (i.e. breathing zone) above an UST are observed.

For Phase II investigations or other activity initiated at the request of a party other than DEQ staff:

- The time and materials to collect samples and all other work performed is not eligible for reimbursement.
- The cost of the sampling analysis indicating a confirmed release is eligible for reimbursement if the analytical results are reported to DEQ within 24 hours of their receipt by the tank operator or consultant.

3.2.2 Category 1 Scope of Work

Typical work at a *Category 1* home heating oil tank site includes performing a visual receptor survey, collecting one to four soil samples and analyzing those samples for TPH/DRO, and preparing the Heating Oil Tank Release Characterization Report Form (Appendix B).

Soil sample collection:

- After the site is assigned to *Category 1* for characterization, staff typically will authorize the collection of 1 to 4 soil samples along with analysis of the samples for Total Petroleum Hydrocarbons, Diesel Range Organics (TPH/DRO). These samples usually will be collected with a soil auger. The number of soil samples to be collected and analyzed will be agreed upon by the Case Manager and consultant on an AAF.
- It is recommended that samples not be collected from previous borings due to possible infiltration of rainwater or other factors that might dilute the contamination. However, if the Case Manager and consultant agree that one or more samples are needed from a previous boring, any additional samples collected from that boring should be taken from at least two feet below the terminal depth of the previous boring to preserve data integrity.

Visual Receptor Survey:

A visual receptor survey is part of the *Category 1* investigation and involves identifying the location of wells within 500 feet of the tank and surface water within 200 feet of the tank. Well completion information is not required for wells identified as part of a *Category 1 receptor survey*.

Product/Fluid removal:

- The Case Manager should not authorize fluid removal if only water remains in the tank for the Category 1 case.
- Except for catastrophic release (as noted below) the Case Manager should only authorize fluids removal one time for each heating oil release.
- When fluids removal from the tank is authorized as part of a Category 1 investigation it is expected that the consultant will wait for the soil analytical results before pumping out the tank.
- In the event the analytical results of the samples collected indicate petroleum saturated soils, the consultant should notify the Case Manager and the case should be elevated to a *Category 2*. In this situation fluid removal should be done as part of the Category 2 tank removal to access product and/or petroleum saturated soils.
- If there is documented evidence of a rapid catastrophic release of product from the tank or if there is a chance of product overflow from the tank due to excessive rainfall or flooding, the tank fluids should be removed as soon as possible. The Case Manager should authorize the Junior Level Professional to return to the site and oversee the removal of fluids from the tank.
- DEQ will only authorize the removal of fluids from a tank more than once when the following situation occurs:
 - a) initial fluid removal is needed to abate a rapid catastrophic release of product from the tank or if there is a chance of product overflow from the tank due to excessive rainfall or flooding; and
 - b) the second fluid removal is needed to remove water (that has infiltrated into the tank since the initial fluids removal) so that the tank can be removed to access product and/or petroleum saturated soil.

Situations involving the rapid catastrophic release of product and the presence of free product and/or petroleum saturated soil generally will be elevated to home heating oil tank *Category 2*.

Report Preparation:

Staff will authorize report preparation time to complete the Leaking Heating Oil Tank Characterization Report Form (Appendix B).

3.2.3 Category 1 Work Authorization and Typical Units

DEQ staff will authorize the materials, equipment, tasks, and personnel time needed to perform a limited site characterization and visual receptor survey, prepare the Heating Oil Tank Release Characterization Report Form, and prepare the reimbursement claim. Typical tasks, materials, and personnel needed to complete a *Category 1* Heating Oil Tank discharge investigation are outlined below and Appendix C includes the *Category 1* AAF with summary instructions.

Units for the following task, material, and personnel codes typically are authorized at *Category 1* heating oil tank sites:

1-2	Hours	M0003	Project Manager (Initial Site Visit to plan field work to be performed by staff and visual receptor survey, 1-2 hours is expected for these activities)
*	Hours	M1481	Project Manager Travel

4-6^a	Hours		M0005 Junior Level Professional (Oversee sampling and log borings; oversee removal of product and fluids from tank if needed)
*	Hours	M1483	Junior Level Professional Travel
*	Mile	M0617	Vehicle Mileage – autos, vans, and pick-ups. (Up to three trips: for PM, for Jr. Level plus Technician, and for Jr. Level)
1-4^a	Sample	T030	Soil Sampling w. Hand Auger (Case specific; more than 1 sample usually will be authorized unless samples from previous work have been analyzed)
*	Hours	M1485	Technician Travel
*	Each	M1157	Bailer - Disposable Polyethylene
*	Sample	M1366	Method 8015B - modified TPH-DRO in water/wastewater
2-4^a	Sample	M1368	Method 8015B - modified TPH-DRO in solid waste/soil
3-4^b	Hour	M1766	Vacuum Truck, includes operator and operating cost *
	Gallon	M1290	Free Product/Contaminated Water Disposal
1-2^c	hour	T100	Report Writing
1	Each	T040	General Site Management
1	Claim	T114	Reimbursement Claim Prep

* = Site Dependent

^a = Most home heating oil tanks have a capacity of 550 gallons or less and 2 to 4 soil samples are expected to be sufficient to characterize the contamination in most cases. This total number of soil samples includes samples collected during a Phase II site assessment. If a sample was collected during a Phase II site assessment, analyzed, and the TPH concentration in that sample was above 100 mg/kg, but well below petroleum saturation, staff may be justified in authorizing only one additional sample from the opposite end of the tank. If a 1000 gallon home heating oil tank is encountered, more than four samples may be needed to adequately characterize the release. The number of hours allowed for a Junior Level Professional is expected to correspond with the number of samples that will be collected. If more than 4 samples are authorized by the Case Manager, the Case Manager may authorize more than 6 hours for the Junior Level Professional to oversee sampling, log the borings, and oversee the vacuuming of product from the tank (if needed). The number of samples authorized and the number of analyses authorized will be lower if samples were collected as part of a Phase II site assessment or activity directed by a party other than DEQ.

^b = This is a typical minimum time for use of a vacuum truck in an urban area. Different amounts of time may be more appropriate if the tank is located in a rural area.

^c = *Category 1* reports are provided on a fill-in-the-blank form (Heating Oil Tank Release Characterization Report Form) and one hour generally is believed to be a sufficient amount of time to prepare the report form. Up to two hours of report preparation may be justified in cases where greater than 4 samples, soil and/or water, were collected and analyzed, and if additional maps, aerial photographs and site photographs are included in the report.

3.2.4 Transition from a *Category 1* Heating Oil Tank Discharge to Another Category

Discharges from heating oil tanks will be placed into *Category 1* if preliminary information indicates that there is little risk to receptors and there is little to no free product or petroleum saturated soil. Additional soil samples typically are collected during the *Category 1* Site Characterization and the tank operator and/or consultant are required to perform a receptor survey. Cases where a moderate threat to a water supply or surface water is believed to exist, the tank operator/consultant must contact the Case Manager and an appropriate course of action must be determined. If the receptor is believed to be at a moderate degree of risk, the case should be moved to *Category 2*. The discovery of significant petroleum saturated

soil or free product in the environment also must be reported to the Case Manager and the site should be reevaluated according to Figures 3-1a – 3-1d. If an imminent threat to a receptor is found (typically the discharge point is in very close proximity to a water supply or surface water), the tank operator/consultant must contact DEQ and, with the Case Manager’s concurrence, the site should be moved to a *Category 3* heating oil discharge so that a more detailed characterization may occur.

Scenario 1. A discharge from a heating oil tank is discovered and reported as a result of a Phase II Investigation

The homeowner or prospective buyer directs a consultant to perform an investigation and collect samples from the vicinity of a heating oil tank. Analytical results from one or more of the samples collected as part of this investigation indicate that a discharge from the heating oil tank has occurred. The tank operator and/or consultant report the discharge to DEQ.

This investigation was initiated at the direction of an entity other than DEQ. The time to collect samples and other work performed as part of this investigation are not eligible for reimbursement. The DEQ may reimburse the tank operator for costs associated with the analytical result(s) indicating a discharge has occurred provided that the discharge is reported within 24 hours of receipt of the analytical results.

If the site is placed into *Category 1*, staff will authorize the time and personnel needed for the consultant to return to the site and obtain additional samples. The consultant should not use the original boreholes to get a deeper sample; rather new borings should be made to ensure sample quality and integrity.

The Case Manager should not authorize fluid removal for a *Category 1* case if only water remains in the tank. When fluid removal from the tank is authorized as part of a *Category 1* investigation, it is expected that the consultant will wait for the soil analytical results before pumping out the tank. In the event the analytical results from the samples collected indicated the presence of petroleum saturated soils the consultant should notify the Case Manager and the case should be elevated to a *Category 2*. In this situation fluid removal should be performed as part of the *Category 2* tank removal to access product and/or petroleum saturated soils.

Scenario 2. A heating oil discharge is reported due to sudden loss of fuel or petroleum odor in tank area

DEQ staff generally will authorize time, tasks, and personnel needed to go to the site and obtain 2 – 4 soil samples and perform a visual receptor survey. Also included is lab analysis of samples for TPH/DRO, personnel time to complete the Heating Oil Tank Release Characterization Report Form, and prepare a reimbursement claim.

If there is documented evidence of a rapid catastrophic release of product from the tank or if there is a chance of product overflow from the tank due to excessive rainfall or flooding the tank fluids should be removed as soon as possible. The Case Manager should authorize the Junior Level Professional to return to the site and oversee the removal fluids from the tank. DEQ will only authorize the removal of fluids from a tank more than once when the following situation occurs:

- a) initial fluids removal is needed to abate a rapid catastrophic release of product from the tank or to reduce the chance of product overflow from the tank due to excessive rainfall or flooding; and
- b) a second fluid removal event is needed to remove water (that has infiltrated into the tank since fluid was initially removed from the tank) so that the tank can be removed to access product and/or petroleum saturated soil.

Catastrophic releases should be elevated to *Category 2* since petroleum saturated soil and/or free product are expected.

3.3 *Category 2 Heating Oil Tank Discharges*

Discharges at *Category 2* heating oil tank sites have free product, petroleum saturated soil, or are believed to present a threat to drinking water supplies or a surface water body. Limited soil excavation, free product removal and vapor mitigation may be performed at *Category 2* sites. Sites may also be placed into *Category 2* if petroleum vapors are present in non-living space structures (e.g. crawl spaces) and it is believed that the *Category 2* guidelines for limited soil removal with ventilation of the crawl space will address protection of human health. Conditions at heating oil tank sites indicating a rapid catastrophic loss of fuel should also be characterized as a *Category 2* heating oil tank discharge if petroleum saturated soil and/or free product are believed present. The Case Manager may determine that site-specific conditions do not warrant free product recovery or the remediation of petroleum saturated soil. Justification that free product removal or remediation of petroleum saturated soil is not necessary must be documented by the case manager in the case file with a written memorandum.

At *Category 2* sites with Phase II investigations or other activity initiated at the request of a party other than DEQ staff:

- The time to collect samples and all other work performed is not eligible for reimbursement.
- The cost of sampling analysis indicating a confirmed release is eligible for reimbursement if the analytical results are reported to DEQ within 24 hours of their receipt by the tank operator or consultant.

Category 2 phases of work include Site Characterization, Site Characterization Addendum, Post SCR Monitoring, and Closure. Occasionally additional site characterization is needed (Site Characterization Addendum phase), as part of a *Category 2* investigation. When a total of 3 or less monitoring wells are necessary, site work should be completed as a *Category 2* site. (See section 3.3.2 for Transition from *Category 2* to *Category 3*)

It is anticipated that most of the heating oil cases not closed as *Category 1* site can be closed as a *Category 2* site.

3.3.1 *Category 2 Scope of Work*

Category 2 sites often can be characterized by excavating up to 26 cubic yards (approx. 39 tons) of petroleum saturated soil, and conducting field work. Normally work performed at a *Category 2* discharge includes equipment, labor, time, and travel necessary to investigate the discharge and remove and dispose of up to 26 cubic yards (approx. 39 tons) of saturated soil. Time is included to conduct a visual survey of potential receptors within 500 feet of the leaking tank, collect samples from the tank pit, prepare a *Category 2* narrative report (see Appendix D for a list of typical report elements), and prepare a reimbursement claim. Some sites warrant the installation of one or more groundwater monitoring wells. When applicable, the following documentation should be included in the site report: all boring logs, well construction diagrams, lab analytical reports, hauling and disposal manifests, and local permits. Photographic documentation is helpful and it is suggested that the tank operator/consultant provide this in the report. Certain materials such as plastic tarps, hay bales and plywood sheets can be used at multiple sites. The Case Manager only will reauthorize these items when the useful life of these materials is gone.

Typical tasks, materials, and personnel needed to complete a *Category 2* Heating Oil Tank discharge investigation are outlined below and Appendix C includes the *Category 2* AAF with summary instructions. Based on site conditions, the Regional Case Manager may authorize additional Task and

Material and units to characterize and clean-up the site.

1-2 Hour M0003 Project Manager (Initial Site Visit to plan field work to be performed by staff and visual receptor survey, 1-2 hours is expected for these activities. The Project Manager may oversee removal of fluid/product from the tank on the initial site visit [as approved by the Case Manager] if there is documented evidence of a catastrophic release and the materials remaining in the tank must be removed as soon as possible. In this situation, the Case Manager should authorize an additional 1 to 2 hours for a Project Manager to oversee removal of fluids from the tank.)

*** Hour M1481 Project Manager Travel**
1 5% Per Claim T040 General Site Management

8-10 Hour M0004 Mid-Level Professional (Supervise field work including soil excavation and removal of fluids from the tank and collect soil samples from backhoe bucket during the process of removing petroleum saturated soil. The typical amount of soil excavated from these sites is 10 to 20 tons. Eight hours is a reasonable amount of time for a mid-level professional where less than 13 tons of soil is excavated. An additional hour or two of time for the mid-level professional may be warranted when 13 – 20 tons of soil will be excavated. Additional hours for a mid-level professional may be warranted if the excavation of greater than 20 tons of soil is authorized by the DEQ Case Manager.)

*** Hour M1482 Mid-Level Professional Travel**

8-10 Hour M1670 Equipment Operator (Eight hours is believed to be sufficient in most cases. Additional hours may be authorized as deemed necessary. When a skid steer and mini-excavator combination is authorized, typically 2 operators for a total of 16 – 20 hours should be authorized)

*** Mile M0617 Vehicle Mileage – autos, vans, and pick-ups.**
1 Day M1771 Backhoe Loader – 75 HP, 4wd, 15,000 lb operating weight. (In lieu of a backhoe loader,

different equipment such as a Skid Steer Loader [Bobcat 853H] in combination with mini-excavator may be authorized. A total of 1 Heavy Equipment Mob/Demob should be authorized for Skid Steer and Mini Excavator.)

2-4^a Sample M1368 Method 8015B - modified TPH-DRO in solid waste/soil. (Additional samples may be authorized as needed by the Case Manager.)

*** Sample M1366 Method 8015B** - modified TPH-DRO in water/wastewater. May be authorized as needed by the Case Manager.

3-4^b Hour M1766 Vacuum Truck - includes Operator & Operation Cost (a 3 – 4 hour minimum may apply)

*** Ton T012 Thermal or Bio-treatment of petroleum contaminated soils** (Maximum expected is 39 tons)

*** Gallon M1290 Free Product/Contaminated Water Disposal**

1-4^a Sample T133 Grab Sample - Sample collected with backhoe or directly by hand. (The collection of up to 4 soil samples is expected to be typical at most sites having tanks of 550 gallons or less. Staff may require additional samples for larger tanks or to further delineate contamination as required by site conditions. Some or all of these samples may be collected with the backhoe bucket during the removal of petroleum saturated soil.)

1 Round Trip Mob T036 Heavy Equipment Mob/Demob (A total of 1 should be authorized for Skid Steer and Mini Excavator)

*** Sample T086 Domestic Well Sampling**

*** Hour T132 Subsurface line location**

*** Roll M0058 Poly film (100' x 20') – 6 mil.** (Up to one roll of

poly film may be authorized on a case-specific basis provided that the poly film will be used to contain petroleum contaminated soil prior to disposal. Staff will not authorize poly film if it will be used only for placement of the removed storage tank.)

*	Sq. Ft.	T047	Re-seeding < 1 acre Re-seeding disturbed area (recommend using perennial/annual blend)
*	Site	T014	Site Reconnaissance, initial site map (This must be a to-scale map showing utilities, wells, septic fields, etc.)
*	Hour	M0005	Junior Level Professional (M005 only will be authorized for this person to supervise a Technician collecting soil samples with a hand auger [T030] in those cases where higher level personnel [mid-level professional, PM] are not already on site. This person will not be needed at all <i>Category 2</i> sites. Time for a Junior Level Professional to log soil borings is included in T028.)
8-10	Hour	M0007	Technician (Assists with excavation and general site work including moving soil and materials by hand. A technician will only be authorized in conjunction with M1771. A technician is not needed if two equipment operators are present at the site.)
*	Hour	M1485	Technician travel.
6-10	Hour	T100	Report Preparation (6 hours is expected to be sufficient for simple sites where 3 or 4 soil samples were collected and analyzed. If wells were installed, domestic wells were sampled or additional soil or ground water samples were collected, additional report writing hours corresponding with the complexity of the site should be approved. See Appendix D for reporting elements.)
1	Claim	T114	Reimbursement Claim Prep

Tasks/Codes for Soil hauling and Backfilling:

If contaminated SOIL HAULING is less than 25 miles to the disposal facility the following codes may be utilized to haul contaminated soil away and bring in backfill materials.

1 Day M1299 Dump truck - tandem, 12 ton capacity (Generally 1 day is sufficient for both soil hauling and backfill. If site conditions or delays at the disposal facility require additional time an additional ½ day may be authorized for backfill.)

OR

1 Day M1300 Dump truck - three axle, 16 ton capacity (Generally 1 day is sufficient for both soil hauling and backfill. If site conditions or delays at the disposal facility require additional time an additional ½ day may be authorized for backfill.)

*** Ton M1725 Gravel.- #57 crushed stone.**

If contaminated SOIL HAULING is 25 miles or more to the disposal facility, the contractor/consultant may claim the soil hauling T-code(s).

*** Ton/Mile T075 Soil Hauling < 75 Tons the First 100 Miles** (use T076 for additional miles > first 100)

*** Ton/Mile T076 Soil Hauling < 75 Tons Over 100 Miles** (use only when miles > 100 in T075)

*** A Code Minimum hauling charge**

*** Cubic Yard T042 Backfilling**

These Items/Codes are Expected when Monitoring Wells are Installed, Sampled, and/or Water Supply Wells are Sampled:

*	Sample	M1379	Method 8260B – Volatile Organics GC/MS in water/wastewater (for analyzing water from domestic wells)
*	Sample	M0149	Method 8270C – semi-volatile organics in water/wastewater (for analyzing water from domestic wells)
*	Round trip MOB	T023	Drill rig MOB/DMOB
*	Linear Foot	T025	Monitoring Well Installation, 2” dia. using HSA

*	Linear Foot	T079	Monitoring Well Installation, 2" diameter using Air Rotary
*	Hour	T028	Log soil borings. Used to log monitoring wells or borings installed with a drill rig, task requires Jr. Level Prof.
*	Hour	M1483	Junior Level Professional Travel (only to be used when Jr. Level Prof. is at site to log soil borings [T028] or supervise a Tech collecting soil samples with a hand auger [T030])
*	Well	T118	Monitoring Well Sampling, 2" diameter (sampling performed by Technician).
*	Sample	T086	Domestic Well Sampling
*	Hour	M1485	Technician travel. (Tech samples monitoring wells [T118], domestic wells [T086], and collects soil samples w. a hand auger [T030]. Additional technician travel time and mileage to take samples to the lab may be authorized in conjunction with T028 {this additional time and mileage may be used in lieu of shipping M0099}).
*	Sample	M1375	Method 8021B, BTEX/MTBE/Naphthalene in water/wastewater (generally will be used for water samples collected from monitoring wells)
*	Cooler	M0099	Shipping Laboratory Samples (up to 50 pounds). (Use this code only in combination with T028 to send samples to the lab. In lieu of M0099, time for a technician to take samples to the lab may be provided.)

* = Site Dependent

^a = Most home heating oil tanks have a capacity of 550 gallons or less and 2 – 4 soil samples are expected to be sufficient to characterize the contamination in most cases. This total number of soil sample includes samples collected during any assessments performed at the request of parties other than DEQ staff. If a 1000 gallon home heating oil tank is encountered, more than four samples may be needed to adequately characterize the release. The number of samples authorized and the number of analyses authorized may be different if samples were collected as part of an activity directed by a party other than DEQ.

^b = This is a typical minimum time for use of a vacuum truck in an urban area. Different amounts of time may be more appropriate if the tank is located in a rural area.

3.3.2 Transition from a *Category 2* Heating Oil Tank Discharge to *Category 3*

Category 2 phases of work include Site Characterization, Site Characterization Addendum, Post SCR Monitoring, and Closure. Occasionally additional site characterization is needed (Site Characterization Addendum phase), as part of a *Category 2* investigation. When more than 3 monitoring wells in total are necessary at a site, the *Category 2* site should transition to *Category 3*.

Two Post SCR monitoring events after the initial sampling may be performed under *Category 2* provided that the Case Manager believes this action is appropriate. The site must transition to *Category 3* if additional Post SCR Monitoring events are performed.

If the Tank operator/consultant finds more extensive petroleum saturated soil and/or free product during the *Category 2* Site Characterization Phase or if an imminent threat to drinking water supplies or surface waters is identified the Case Manager should be notified prior to completing the *Category 2* Site Characterization Report. If these conditions exist the Case Manager should elevate the case to a *Category 3*. In these cases the Site Characterization (including any additional work authorized by the case manager) should be completed under *Category 3 Site Characterization Phase*.

3.4 *Category 3 Heating Oil Tank Discharges*

Discharges at *Category 3* heating oil tank sites have impacted or present a high probability to impact a receptor or involve discharges from heating oil tanks having a capacity of greater than 1,000 gallons. These sites require a SCR before determining appropriate corrective actions. The Case Manager, tank operator, and consultant need to decide upon the scope of work needed to characterize the site. Work for *Category 3* sites follows the program's normal procedures for release response and corrective action. The Case Manager may require initial abatement, an appropriate site characterization, and, if warranted, the development and implementation of a Corrective Action Plan.

Discharges involving an impact to a drinking water supply or surface water body will be considered *Category 3* heating oil tank discharges.

4.0 Activity Authorization at Heating Oil Tank Sites

Activity Authorization Forms have been developed specifically for the work likely to be performed at *Category 1* and *2* heating oil tank sites (Appendix C). Activities performed at *Category 1* and *2* sites are performed in the Site Characterization Phase. Occasionally, it may be necessary to perform limited additional work at *Category 2* sites in the Site Characterization Addendum and Post SCR Monitoring Phases.

When a site advances from one category to a higher category, the Case Manager should collect all AAFs for that particular phase of work and verify the work performed with one Verification Form. In these instances, the Case Manager has the option to have the RP/consultant combine all approved work for the site onto one AAF for verification.

When monitoring well installation is authorized at a *Category 2* site, abandonment of those wells generally will be performed in a separate Closure Phase. Task T114, Reimbursement Claim Prep should be authorized for the well abandonment done during this Closure Phase.

Sites that transition from one category to another within the Site Characterization Phase are eligible for only one claim preparation task for the Site Characterization Phase.

Example 1. Activity Authorization and verification during a transition from a *Category 1* to a *Category 2* case.

A site assessment is performed for a real estate transaction and samples are collected in the vicinity of a 500 gallon heating oil UST. One of the samples is reported to have a TPH concentration of 450 mg/kg. The discharge is reported to DEQ, the site is in a subdivision where all houses are served by public water, and there are surface water bodies within 200 feet of the tank.

Based upon the initial sample results, the case is assigned to *Category 1* and the tank operator (and his/her consultant) is directed to collect 3 additional samples from below the tank with a hand auger. The consultant returns to the site and collects three additional samples. Subsequent analyses indicate that the TPH concentration in two of the samples exceeds DEQ's soil saturation levels for #2 fuel oil. These results are reported to DEQ.

The case should transition to *Category 2* and site characterization should be completed under *Category 2*. The Case Manager may verify the work performed while the case was in *Category 1* on the *Category 1* AAF and then approve and verify (as appropriate) *Category 2* work on a *Category 2* AAF.

Example 1. continued

Another option the Case Manager has is to direct the consultant to place all *Category 1* work performed on the *Category 2* AAF and the Case Manager can verify all work when the Site Characterization Phase is completed.

5.0 Excavation or Intrusive Work Near Structures

Home heating oil USTs may be found in close proximity to houses or other buildings. The DEQ expects the tank operator/consultant to exercise all care when performing release response and corrective actions for home heating oil discharges to minimize, to the extent possible, risk to the building. Damages to buildings are not reimbursable expenses. If the tank operator/consultant believes that excavation or other intrusive activities may present a risk to damaging a building, the tank operator/consultant needs to contact the DEQ Case Manager prior to initiating work. The tank operator/consultant and Case Manager may then decide upon a scope of work that can meet the release response and corrective action objectives without compromising the integrity of the building.

Appendix A

Closure Letter Following DEQ NFA

Example Letter
Case Closure following DEQ Determined No Further Action (NFA)

RE: PC#

Dear [**Tank Operator**]:

This correspondence is in regard to the referenced pollution complaint and accompanying documentation provided to the Department of Environmental Quality (DEQ) on [**date**]. Based on the information provided, the tank is out of service and contamination levels do not warrant further corrective action at this time. The DEQ recommends that the tank operator empty the contents of this out-of-service tank and contact the local building official or fire marshal for proper tank closure procedures. Tank operators who knowingly continue to operate a leaking tank may not be eligible for reimbursement from the Virginia Petroleum Storage Tank Fund. Be advised that should environmental problems develop in this area, additional information and/or corrective action may be required in accordance with the applicable State and Federal regulations.

The DEQ thanks you for the information you submitted. If you require additional information, please contact this office at [telephone number].

Sincerely,

Name
Regional Storage Tank Program Manager

Appendix B

***CATEGORY 1* HEATING OIL TANK RELEASE CHARACTERIZATION REPORT FORM**

Category 1 HEATING OIL TANK RELEASE CHARACTERIZATION REPORT FORM

Instructions: This form may be used only for reporting investigation and corrective actions at Category 1 sites with releases from heating oil tanks with a capacity of 1,000 gallons or less and no impacted water supply wells within 500 feet or impacted surface water bodies within 200 feet of the leaking tank.

A. PC Number:	B. Site Name:	C. Date Reported:
D. Responsible Person's (RPs) Address: RP can be Spiller or Tank Operator	E. RP's Phone:	F. DEQ Case Manager:
G. Site Address (if different than RP's Address; include City and Zip Code):		

H. **Soil Sample Results: Attach a copy of all lab reports and boring log(s). Include sample depth in Description below.**

Sample 1 Description: _____	Method: _____	Results: _____
Sample 2 Description: _____	Method: _____	Results: _____
Sample 3 Description: _____	Method: _____	Results: _____
Sample 4 Description: _____	Method: _____	Results: _____
Sample 5 Description: _____	Method: _____	Results: _____

I. **Water Sample Results: Attach a copy of all lab reports.**

Sample 1 Description: _____	Method: _____	Results: _____
Sample 2 Description: _____	Method: _____	Results: _____
Sample 3 Description: _____	Method: _____	Results: _____

J. **Site History and Conditions**

How was the release discovered? If known, estimate amount of product lost .

State the age of the tank and the tank status (in use or out of use at the time of the soil samples; if out of use, how long?):

Has the tank been removed or properly closed in place since the initial sample? Is so, list the activity and date.

Describe the material surrounding the tank (e.g. clay, sand, pea gravel, bedrock, etc.) and its condition (wet or dry, stained by petroleum, etc.)

K. **Receptor Survey**

Evaluate the risk to any surface water bodies within 200 feet of the release.

Is the area served by public water?

☐

YES

☐

NO

Receptor Survey – Continued

Evaluate the risk to drinking water wells located within 500 feet of the release. For all wells, describe the distance from the release, topographic location from the release, depth, and construction. Provide general geologic information and soil types at the release site.

Was recoverable free product or a significant volume of saturated soil encountered? ☐ YES ☐ NO

If "YES," please describe location and other pertinent information below:

Evaluate the risk to structures such as basements, sumps, crawl spaces, subsurface utilities, etc.

Does the building at the release site or adjacent properties have a basement, sump, or crawl space? ☐ YES ☐ NO

If "YES," please identify them on your attached location/topo map and provide details (address, location relative to the PC site) below:

Were any of the basements, sump, or crawl spaces impacted? ☐ YES ☐ NO

If "YES," please identify them on your attached location/topo map and provide details below.

Evaluate the risk to underground utilities in the area

- L. **Summarize site activities and include dates. Feel free to include any additional information or comments. Include recommendations.**

Attach the following items to this report. The report will not be considered complete without each of these items.

1. A **location map of the site** with street names and release site address. Note all sampling points, tank location, and distance to potential receptors on the map. The map does not need to be to scale and may be neatly drawn by hand.
2. **Topographic map showing the location of the site**
3. **Lab reports** for all samples listed above
4. Heating Oil Tank *Category 1 AAF*
5. Hand auger **boring log(s)**
6. Site **photos** (optional, but recommended),
7. Local **Permits**, if applicable (for example, if tank was properly closed)

Consultant's Signature: _____ Date: _____

Consultant's Name (print): _____ Phone: _____

Company Name: _____ Address: _____

City: _____ State: _____ Zip: _____

Appendix C

Category 1 and Category 2 Heating Oil Tank AAFs

Virginia Department of Environmental Quality

Petroleum Clean-up

Category 1 – Heating Oil Tank



Activity Authorization Form for 007 UCRs

PC #: _____ Site Name: _____ Consultant: _____

Regional Office: _____ RP/Consultant's Phone No: (_____) _____ Fax No: (_____) _____

Consultant's e-mail: _____ ☒ Site Characterization Work Performed From: _____ to _____

**To use this form, the phase must have started on or after March 1, 2007.
Costs for Work Performed units on this AAF, which started before March 1, 2007, will be denied.**

Note: Authorization of work does not guarantee DEQ reimbursement of costs.

Code	Description	Unit Type	Proposed Units	Contingent Units	Work Performed Units	DEQ Verified Units	RP/Consultant Comments	DEQ Comments
M0003	Project Manager	Hour						
M1481	Project Manager Travel	Hour						
M0005	Junior Level Professional	Hour						
M1483	Junior Level Professional Travel	Hour						
M0617	Vehicle Mileage – autos, vans, & pick-ups	Mile						
T030	Soil Sampling with Hand Auger	Sample						
M1485	Technician Travel	Hour						
M1157	Bailer – Disposable Polyethylene	Each						
M1366	Method 8015B – modified TPH-DRO in water/wastewater	Sample						

PC# _____

Code	Description	Unit Type	Proposed Units	Contingent Units	Work Performed Units	DEQ Verified Units	RP/Consultant Comments	DEQ Comments
M1368	Method 8015B – modified TPH-DRO in solid waste/soil	Sample						
M1766	Vacuum Truck, includes operator & operating cost	Hour						
M1290	Free Product/Contaminated Water Disposal	Gallon						
T100	Report Writing	Hour						
T040	General Site Management	5%						
T114	Small Reimbursement Claim Prep	Claim						

RP/Consultant Signature:

Name: _____ Signature: _____ Date: _____

DEQ Regional Office Pre-Approval:

Name: _____ Signature: _____ Date: _____

DEQ Regional Office Verification

Name: _____ Signature: _____ Date: _____

Instructions for Completing the Category 1 Heating Oil Tank AAF for 007 UCRs

Use this form for Regional Office authorization and verification for Phases beginning on or after March 1, 2007.

DEQ Regional Staff will work with the Responsible Person (RP) and/or their consultant to determine the activities necessary to abate the release and to characterize the extent of the contamination. The RP/Consultant must fill out the **Activity Authorization Form (AAF)** and submit it to the Regional Office for authorization of activities prior to the initiation of site work (see Section 2.2.3 of the Reimbursement Manual for emergency authorization of clean-up work). The RP/Consultant should fill out the information at the top of the sheet including the **Site Name**, the appropriate **Regional Office**, and the **RP/Consultant phone number, fax number, and email address**. The **PC#** should be entered at the top of each page.

Work performed at a *Category 1* heating oil tank discharge includes equipment, travel mileage and time to investigate the discharge, advance borings with a hand auger, collect and analyze soil samples, conduct a survey of potential receptors including drinking water wells within 500 feet and surface water bodies within 200 feet of the leaking tank, and, if needed, remove product and materials from the tank.

The following number of units are typically authorized at Category 1 Sites. Please reference DEQ's Storage Tank Program guidance documents for specific reporting scenarios that may impact the completion of this AAF and detailed discussion about Category I scope of work:

1-2	Hour	M0003	Project Manager (Initial site visit to plan field work to be performed by staff and visual receptor survey)
H	Hour	M1481	Project Manager Travel
4-6	Hour	M0005	Junior Level Professional (Oversee sampling and log borings; oversee removal of product and fluids from tank if needed)
H	Hour	M1483	Junior Level Professional Travel
H	Mile	M0617	Vehicle Mileage – autos, vans, & pick-ups (Up to three trips: for PM, for Jr. Level and Technician, and for Jr. Level
1-4	Sample	T030	Soil Sampling (Case specific; more than 1 sample usually will be authorized unless samples from previous work have been analyzed)
H	Hours	M1485	Technician Travel
H	Each	M1157	Bailer - Disposable Polyethylene
H	Sample	M1366	Method 8015B - modified TPH-DRO in water/wastewater
2-4	Sample	M1368	Method 8015B - modified TPH-DRO in solid waste/soil
3-4	Hour	M1766	Vacuum Truck (Typical in a metropolitan area)
H	Gallon	M1290	Free Product/Contaminated Water Disposal
1	Hour	T100	Report Writing
1	Each	T040	General Site Management
1	Claim	T114	Small Reimbursement Claim Prep

H = Site Dependent

NOTE: The consultant is strongly advised to e-mail the case manager within 24 hours confirming any verbal approval by the regional office for additional field work. The case manager should respond to the e-mail to confirm change in work scope. The consultant is advised to attach any such e-mail correspondence to the work performed AAF to assist the case manager verifying the AAF.

DEQ regional case managers may request additional documentation if they deem it necessary to verify work performed units presented on the AAF. The case manager will review all AAFs with the work performed and any reports submitted for the claimed phase. The Regional Office must verify this work performed before a reimbursement application can be processed; RO verification of a work-performed AAF will be completed within 30 days.

Virginia Department of Environmental Quality

Petroleum Clean-up

Category 2 – Heating Oil Tank



Activity Authorization Form for 007 UCRs

PC #: _____ Site Name: _____ Consultant: _____

Regional Office: _____ RP/Consultant's Phone No: (_____) _____ Fax No: (_____) _____

Consultant's e-mail: _____ Work Performed From: _____ to _____

- ☐ Site Characterization
 ☐ Site Characterization Report Addendum
☐ Post SCR Monitoring
 ☐ Closure

**To use this form, the phase must have started on or after March 1, 2007.
Costs for Work Performed units on this AAF, which started before March 1, 2007, will be denied.**

Note: Authorization of work does not guarantee DEQ reimbursement of costs.

Code	Description	Unit Type	Proposed Units	Contingent Units	Work Performed Units	DEQ Verified Units	RP/Consultant Comments	DEQ Comments
M0004	Mid-Level Professional	Hour						
M1670	Equipment Operator	Hour						
M0617	Vehicle Mileage: autos, vans, & pick-ups	Mile						
M1771	Backhoe Loader - 75 hp, 4 WD, 15,000 lb operating weight	Day						
M1366	Method 8015B – modified TPH-DRO in water/wastewater	Sample						
M1368	Method 8015B – modified TPH-DRO in solid waste/soil	Sample						
M1482	Mid-Level Professional Travel	Hour						
M1766	Vacuum Truck, includes operator & operating cost	Hour						

PC# _____

Code	Description	Unit Type	Proposed Units	Contingent Units	Work Performed Units	DEQ Verified Units	RP/Consultant Comments	DEQ Comments
T012	Thermal or Bio-treatment of Petroleum Contaminated Soils	Ton						
M1290	Free Product/Contaminated Water Disposal	Gallon						
T133	Grab sample	Sample						
T036	Heavy Equipment Mob/Demob	Round Trip Mob						
T047	Reseeding < 1 Acre	Sq ft						
M0058	Poly Film (100' x 20') - 6 mil	Roll						
T132	Subsurface line location	Hour						
T014	Site Reconnaissance/Initial Site Map	Site						
M1725	Gravel - #57 crushed stone	Ton						
M1299	Dump Truck - tandem, 12 ton capacity	Day						
M1300	Dump Truck - three axle, 16 ton capacity	Day						
M0003	Project Manager	Hour						
M1481	Project Manager Travel	Hour						
T100	Report Preparation	Hour of Report Prep						
T114	Small Reimbursement Claim Prep	Claim						
T040	General Site Management	5%						
T118	Monitoring Well Sampling - Two Inch Diameter	Well						

PC# _____

Code	Description	Unit Type	Proposed Units	Contingent Units	Work Performed Units	DEQ Verified Units	RP/Consultant Comments	DEQ Comments
T079	Monitoring Well Installation - 2" Diameter using Air Rotary	Linear Foot						
T023	Drill Rig Mob/Demob	Round Trip Mob						
T025	Monitoring Well Installation - 2" Diameter using HSA	Linear Foot						
T028	Log Soil Borings	Hour						
T118	Monitoring Well Sampling, 2" diameter	Well						
M0007	Technician	Hour						
M1485	Technician Travel	Hour						
M1375	Method 8021B - BTEX/MTBE/Napthalene in water/wastewater	Sample						
M1483	Jr. Level Professional Travel	Hour						
T086	Domestic well sampling	Sample						
M1379	Method 8260B - Volatile Organics GC/MS in water/wastewater	Sample						
M0149	Method 8270C - Semi-volatile Organics	Sample						
M0099	Shipping Laboratory Samples (Up to 50 lbs)	Cooler						

PC# _____

RP/Consultant Signature:

Name: _____ Signature: _____ Date: _____

DEQ Regional Office Pre-Approval:

Name: _____ Signature: _____ Date: _____

DEQ Regional Office Verification

Name: _____ Signature: _____ Date: _____

Instructions for Completing the Category 2 Heating Oil Tank AAF for 007 UCRs

Use this form for Regional Office authorization and verification for Phases or Sub-phases beginning on or after March 1, 2007.

DEQ Regional Staff will work with the Responsible Person (RP) and/or their consultant to determine the activities necessary to abate the release and to characterize the extent of the contamination. The RP/Consultant must fill out the **Activity Authorization Form (AAF)** and submit it to the Regional Office for authorization of activities prior to the initiation of site work (see Section 2.2.3 of the Reimbursement Manual for emergency authorization of clean-up work). The RP/Consultant should fill out the information at the top of the sheet including the **Site Name**, the **Phase** under which the work will be performed (see Reimbursement Guidance Manual), the appropriate **Regional Office**, and the **RP/Consultant phone number, fax number, and email address**. The **PC#** should be entered in the space at the top of each page.

Category 2 Scope of Work: Work performed at a *Category 2* home heating oil tank discharge often includes equipment, labor, time, and travel necessary to investigate the discharge, typically by removing and disposing of up to 26 cubic yards (approx. 39 tons) of petroleum saturated soil. Monitoring wells may be installed as part of the scope of work. Time is included to conduct a survey of drinking water wells within 500 feet and surface water bodies within 200 feet of the leaking tank, advance borings using a hand auger (if required by DEQ), collect samples, and prepare a narrative Site Characterization Report. When applicable, the following documentation should be included in the Site Characterization Report: all boring logs, well construction diagrams, lab analytical reports, hauling and disposal manifests.

The following Materials and Tasks Codes and associated units typically are authorized at *Category 2* Sites. Please reference DEQ's Storage Tank Program guidance documents for specific reporting scenarios that may impact the completion of this AAF and detailed discussion about *Category 1* scope of work:

1-2	Hour	M0003	Project Manager (Initial Site Visit to plan field work to be performed by staff and visual receptor survey, 1-2 hours is expected for these activities). Additional hours may be authorized for complicated situations (e.g. excavation next to a foundation) where the Project Manager (PM) needs to be on site to supervise specified activities. The PM may oversee removal of fluid/product from the tank on the initial site visit (as approved by the case manager) if there is documented evidence of a catastrophic release and the materials remaining in the tank must be removed ASAP. In this situation, the case manager should authorize an additional 1 to 2 hours for a PM to oversee removal of fluids from the tank.
H	Hour	M1481	Project Manager Travel
1	5% Per Claim	T040	General Site Management
8-10	Hour	M0004	Mid-Level Professional (Supervise field work including soil excavation and removal of fluids from the tank and collect soil samples from backhoe bucket during the process of removing petroleum saturated soil. The typical amount of soil excavated from these sites is 10 to 20 tons. Eight hours is expected to be a reasonable amount of time for a mid-level professional where less than 13 tons of soil are excavated. An additional hour or two of time for the mid-level professional may be warranted when 13 – 20 tons of soil will be excavated. Additional hours for a mid-level professional may be warranted if the excavation of greater than 20 tons of soil is authorized by the DEQ case manager.
H	Hour	M1482	Mid-Level Professional Travel
8-10	Hour	M1670	Equipment Operator (When a skid-steer and a mini-excavator combination is authorized, typically, 2 operators for a total of 16-20 hours will be authorized)
H	Mile	M0617	Vehicle Mileage – autos, vans, & pick-ups
1	Day	M1771	Backhoe Loader - 75 hp, 4 WD, 15,000 lb operating weight, includes operating costs. In lieu of a backhoe loader, different equipment such as a Skid Steer Loader (Bobcat 853H) in combination with mini-excavator may be authorized.
2-4	Sample	M1368	Method 8015B - modified TPH-DRO in solid waste/soil. Additional samples may be authorized as needed by the case manager.
H	Sample	M1366	Method 8015B - modified TPH-DRO in water/wastewater. May be authorized as needed by the case manager.
3-4	Hour	M1766	Vacuum Truck, Includes Operator & Operation Cost (3 – 4 hour minimum may apply).
H	Ton	T012	Thermal Desorption or Bio-remediation of Petroleum Contaminated Soils (Max. expected is 39 tons)
H	Gallon	M1290	Free Product/Contaminated Water Disposal
1-4	Sample	T133	Grab Soil Sampling. The collection of up to 4 soil samples is expected to be typical at most sites having tanks of 550 gallons or less. Additional samples may be needed for larger tanks or as directed by DEQ staff to further delineate contamination as

dictated by site conditions. The DEQ will not reimburse for sampling performed at the request of an entity other than DEQ. Some or all of these samples may be collected with the backhoe bucket during the removal of petroleum saturated soil.

1	Round Trip Mob	T036	Heavy Equipment Mob/Demob
H	Day	M1299	12 Ton dump truck (An additional ½ day may be authorized for backfilling along with gravel).
H	Day	M1300	16 Ton dump truck (An additional ½ day may be authorized for backfilling along with gravel).
H	Hour	T132	Subsurface Line Location
8-10	Hour	M0007	Technician – Assists with excavation and general site work including moving soil and materials by hand. A technician will only be authorized in conjunction with M1771. A technician is not needed if 2 equipment operators are present at the site.
H	Hour	M1485	Technician Travel
H	Roll	M0058	Poly Film (100' x 20') - 6 mil. Up to one roll of poly film may be authorized on a case-specific basis. Poly film must be used to contain petroleum contaminated soil prior to disposal. Staff will not authorize poly film if it will be used only for placement of the removed storage tank.
H	Sq. Ft.	T047	Re-seeding < 1 acre. Re-seeding disturbed area (recommend using perennial/annual blend)
1	Site	T014	Site Reconnaissance, site map. This must be a to-scale map showing utilities, wells, septic fields, etc.
6-10	Hour of Report Prep	T100	Report Preparation (6 hours is expected to be sufficient for simple sites where 3 or 4 soil samples were collected and analyzed. If wells were installed, domestic wells were sampled or additional soil or ground water samples were collected, additional report writing hours corresponding with the complexity of the site should be approved).
H	Ton	M1725	Gravel - #57 crushed stone. If M1299 or M1300 is used, then this code should be used instead of T042. May be authorized along with ½ day of dump truck for backfilling purposes.
1	Claim	T114	Small Reimbursement Claim Prep
Tasks/Materials/Personnel Expected when Monitoring wells will be installed, sampled, or domestic wells sampled			
H	Sample	T086	Domestic Well Sampling
H	Sample	T118	Monitoring Well Sampling, 2" diameter
H	Sample	M1379	Method 8260 in ground water (to be used for analyzing water from domestic wells, if needed)
H	Sample	M0149	Method 8270C (to be used for analyzing water from domestic wells, if needed)
H	Round trip MOB	T023	Drill rig MOB/DMOB
H	Linear Foot	T025	Monitoring Well Installation, 2" diameter using HSA
H	Linear Foot	T079	Monitoring Well Installation, 2" diameter using Air Rotary
H	Hour	T028	Log soil borings. Used to log monitoring wells or borings installed with a drill rig, task requires Jr. Level Prof.
H	Hour	M1483	Junior Level Professional Travel - see M0005
H	Hour	M1485	Technician travel. Associated with T118, T086, and T030.
H	Sample	M1375	Method 8021B, BTEX/MTBE/Naphthalene in water (typically samples collected from monitoring wells)
H	Cooler	M0099	Shipping Laboratory Samples (Up to 50 lbs) Use this code only in conjunction with T028 to send samples to the lab

H = Site Dependant

Note: If the consultant encounters field conditions that alter the approved scope of work, and verbal approval is obtained from the case manager for additional work, the consultant is strongly advised to e-mail the case manager within 24 hours confirming the verbal approval. The case manager should respond to the e-mail to confirm change in work scope. The consultant is advised to attach any such e-mail correspondence to the work performed AAF to assist the case manager verifying the AAF. DEQ regional case managers may request additional documentation if they deem it necessary to verify work performed units presented on the AAF the case manager will review all AAFs with the work performed and any reports submitted for the claimed phase. Regional Office Staff must verify this work performed before a reimbursement application can be processed; RO verification of a work-performed AAF must be completed within 30 days.

Appendix D

Elements of a Category 2 Heating Oil Tank Release Site Characterization Report (SCR)

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY (DEQ) STORAGE TANK PROGRAM
FACT SHEET: ELEMENTS OF A CATEGORY 2 HEATING OIL TANK RELEASE SITE CHARACTERIZATION
REPORT (SCR)

This fact sheet may be used as a guide for investigating and performing cleanup activities at Category 2 sites with discharges from heating oil tanks with a capacity of 1,000 gallons or less. Category 2 sites are typically characterized by the presence of free product, petroleum saturated soils, and potentially impacted receptors. The narrative report should address or contain the following items:

1. Title page
 - a. Site name, site address including city and ZIP code, and pollution complaint (PC) number.
 - b. Responsible Party's (RP's) address and telephone number. Note: the RP may be the facility operator who is usually the tank owner, or the RP may be the spiller.
 - c. DEQ Case Manager (CM)
 - d. Date of SCR
2. Signature Page
 - a. Preparer's name, address, telephone number, fax number, internet email address
3. Site Characterization
 - a. Site history and conditions
 - Describe when and how the heating oil release was discovered and the cause of the release.
 - Estimate the amount of product lost and provide an explanation on how the calculation was derived.
 - State the age of the tank(s).
 - Indicate the tank status, noting if and when the tank was in use or out of use at time of sampling.
 - Describe the condition of the tank and piping (intact, corroded, etc.), the material surrounding the tank (e.g., clay, sand, pea gravel, bedrock, etc.), the material's condition (wet or dry, petroleum-stained, petroleum-saturated, etc.).
 - b. Assessment
 - Describe each sample collection location and sample type (soil, ground water, vapor, etc.) and provide the rationale for collecting the sample.
 - Estimate the vertical and horizontal extent of contamination.
 - Describe the techniques and procedures used at this site to check for free product and petroleum saturated soil.
 - Indicate if petroleum-saturated soils and recoverable free product are still present and provide pertinent information about them (mass or volume of free product and/or saturated soil remaining at the site).
 - Indicate if ground water has been or is suspected to be impacted.
 - Provide information about the general geology and soil types at the release site.
 - Provide analytical data collected from the site. Present analytical information in tabular form if appropriate.
 - c. Receptor Survey
 - Indicate if the area is served by public water.
 - Evaluate the risk to surface water bodies within 200 feet of the release.
 - Evaluate the risk to drinking water wells within 500 feet of the release. For all wells, describe the distance from the release, the topographic location relative to the release, well depth, and construction (if available).
 - Evaluate the risk to structures such as basements, sumps, crawl spaces, subsurface utilities, etc., identify them on a map, and provide details including the address, the location relative to the PC site, and if the structure has been or is anticipated to be impacted by the petroleum release.
 - d. Abatement/clean-up measures taken
 - Describe what actions were taken to stop the release and include information on tank closure.
 - Describe the methods used to recover free product at the site and the amount of free product recovered.
 - Indicate how petroleum-saturated soils were addressed.
 - Describe how any hazards were mitigated or are being mitigated and how contaminant migration was or is being prevented.
4. Summary and Recommendations
 - Summarize site activities and include dates.
 - Include recommendations (SCR addendum, Post-SCR monitoring, case closure, transition to a Category 3 Heating Oil Tank Site for further characterization/corrective action, etc.)

5. Attachments

- a. Location map of site with north arrow, street names, site address, sampling points, tank location, distance to receptors, etc. Map may be unscaled and hand-drawn.
- b. Topographic map with site plotted.
- c. Analytical laboratory reports (lab sheets) for all samples.
- d. Boring and well completion logs.
- e. Printed digital images or photographs showing aerial shots, site activities, etc (recommended).
- f. Local permits and disposal certificates/manifests.
- g. Final Category 2 Activity Authorization Form (AAF) with “work performed” column completed (included with report, but not bound into document).